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ABSTRACT

A descriptive study gathered information on the collegiate backgrounds of degreed trade and industrial (T&I) education teachers. Questionnaires were sent to all department chairpersons listed in "Industrial Teacher Education Directory," except to those who offered only industrial arts, industrial arts education, or technology education degrees. Of 230 questionnaires mailed, 185 (80 percent) were returned. Respondents indicated all industrial education degree titles offered at their institutions. Of the 110 institutions that offered degree T&I teacher certification, 35 indicated that they offered degrees in T&I education, trade(s) and industry, and vocational industrial education. The other institutions qualified T&I teachers under 21 different degree designations. Respondents indicated 24 different degree designations for graduates eligible for secondary T&I teaching certificates. The survey showed the following numbers of T&I qualified teaching graduates in 1990: baccalaureate--751; masters--450; specialist--48; and doctorate--81. Respondents reported that 4,510 teachers took courses for T&I certification. They also reported 2,292 teaching graduates and 8,732 nonteaching graduates, a ratio of 3.81 to 1. The recommendation was made that universities with industrial technology or industrial management programs should consider organizing an education program which includes a T&I option. (Three tables are appended.) (YLB)

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The Role of the University in Trade and Industrial Education Credentialing

Presented at the American Vocational Association Convention, Cincinnati, Ohio

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The Role of the University in Trade and Industrial Education Credentialing

In the Industrial Teacher Education Directory (Dennis, 1989-90) only 35 trade and industrial education (T&I), trade(s) and industry, and vocational industrial education programs are listed out of 247 entries from the United States and territories. Phone contacts have indicated that degree T&I certification is being offered to graduates (with proper work experience) who may have earned numerous other degree titles. The aforementioned credentialing system is confusing. Although reciprocity of credentialing may not be possible or even desirable, a study of practices among universities is long overdue.

Purpose and Research Questions

The primary purpose of this descriptive study was to gather information on the collegiate backgrounds of degreed T&I teachers. The following research questions were addressed in the study:

1. How many industrial education degree titles were there in institutions of higher education in the United States and territories in 1989-90?
2. How many bonafide T&I degree programs were there in the nation in 1989-90?

3. What were the degree titles and numbers of secondary option T&I qualified graduates in the nation in 1989-90?
4. How many persons at all degree levels received bonafide T&I teaching degrees in the nation in 1989-90?
5. How many nondegreed T&I teachers were served by universities in 1989-90?
6. What were the ratios of teaching and nonteaching occupational graduates in 1989-90?

Methodology

Questionnaires were sent to all department chairpersons listed in Dennis, 1989-90, except to those who offered only industrial arts, industrial arts education or technology education degrees. Out of a total of 230 questionnaires mailed, 185 or 80% were completed and returned.

Data were analyzed and placed in tabular form. Research questions were answered from an analysis of the data.

Results

Responses to the research questions were as follows:

Research Question 1. How many industrial education

degree titles were there in insitutions of higher education in the United States and territories in 1989-90?

Appendix A provides a list of all industrial education degree titles and numbers of institutions offering such degrees (Dennis, 1989-90). The number of universities who offered nondegree T&I certification courses is also included. A rank order of frequency of the top ten titles follows:

Title	No. of Institutions
Industrial Technology(ies)	98
T&I State Teaching Certification	63
Industrial Arts (general)	58
Industrial Education	43
Vocational Education	38
Industrial Arts Education	33
Technology Education	29
Vocational-Technical Education	17
Trade and Industrial Education	15
Vocational Industrial Education	12

It is observed that several titles, although different in name are similar or identical in meaning. Examples are (s) industrial arts (general) and industrial arts education, (b) trade and industrial education, trade(s) and industry, and vocational industrial education. It is notable that 64 titles are management/ occupational/technology degrees which typically have non-teaching objectives.

Research Question 2. How many bonafide T&I programs were there in the nation in 1989-90? The 110 institutions in the nation which offered degree T&I teacher certification are portrayed in Appendix B. Of this number 35 offered degrees in trade and industrial education, (b) trade(s) and industry, and (c) vocational industrial education. The other institutions qualified T&I teachers under 21 different degree designations.

Research Question 3. What were the degree titles and numbers of secondary option T&I qualified graduates in the nation in 1989-90?

In Appendix C the degree titles and numbers of T&I secondary option graduates are portrayed. Information from 185 respondents indicated 24 different degree designations for graduates eligible from secondary T&I

teaching certificate.

Roberts (1971) defined two synonymous terms for T&I education. In referring to the Smith-Hughes Act of 1917, he states, "the law has stimulated the development of industrial education programs in times of peace and war. The program which was termed the trade and industrial education program is now known as the vocational industrial education program" (p. 264). The title "trade(s) and industry" is also found in the Smith-Hughes Act legislation and is also considered as a synonymous term in this study.

By accepting (a) trade and industrial education, (b) trade(s) and industry, and (c) vocational industrial education as bonafide T&I titles this left 21 other allied degree titles for T&I graduates. A rank order of the top five T&I qualified degree titles and number of secondary option degree graduates follows:

Title	No. of Graduates
Industrial Technology(ies)	258
Vocational Education	219
Trade and Industrial Education	190

Vocational Industrial Education 122

Vocational Technical Education 112

A analysis of the 21 degree titles not designated as T&I programs in Appendix C indicated that they were umbrella titles which also included the following instructional areas:

technology

industrial management

industrial arts/technology education

Research Question 4. How many persons at all degree levels received bonafide T&I teaching degrees in the nation in 1989-1990?

The survey indicated the following number of T&I qualified teaching graduates in 1990.

Baccalaureate	751
Masters	450
Specialist	48
Doctorate	81

Research Question 5. How many non-degree T & I teachers were served by universities in 1989-90?

The 185 questionnaires returned indicate a total of 4,510 teachers who took courses for T&I certification. This figure is likely to be low because many institutions indicated (a) that they did not keep records of these teachers (b) that a rough estimate was all that could be provided, or (c) such courses were part of an inservice degree program, hence these teachers were counted in the same manner as other degree pursuing students.

Research Question 6. What were the ratios of teaching and nonteaching occupational graduates in 1989-90? This information was gathered by counting the technology and management graduates as the nonteaching group (Dennis, 1989-90). All other graduates were counted as the teaching group. Industrial arts and technology education graduates were not included. Teaching graduates in a nonteaching category as determined from the survey, were subtracted from the non-teaching group. Figures are as follows:

No. of Teaching Graduates	No. of Nonteaching Graduates
2292	8732

The ratio of nonteaching to teaching graduates was 3.81 to 1.

Discussion and Implications

The vast majority of T & I teachers are nondegreed. Work experience requirements and salary considerations have contributed to the paucity of T & I degree personnel (Duenk, 1989). Due largely to the Standards of Excellence in T&I Education (USDE, 1985) there has been an upgrading in T&I certification throughout the nation (Duenk, 1989). This upgrading has taken the form of planned programs which encourage nondegreed teachers to work toward AS or BS degrees as conditions of full certification (Duenk, 1989).

Unfortunately the identity of bonafide T&I programs in our universities is still a serious program. Most degreed T&I teachers have degrees in other areas and enroll in state department of education required courses to gain T&I certification. The extent of this situation

is indicated in this study.

Recommendations

1. Universities with industrial technology or industrial management programs should consider organizing an education program which includes a T&I option.
2. Training and development programs should be organized which include both student teaching and industrial internship options.
3. The Standards of Excellence in T&I (1985) recommended a provisional program for degree T&I graduates. Mixed professional courses which include students pursuing several diverse areas may not be serving the primary needs of T&I personnel.

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Appendix A

Degree Titles Listed in Industrial Teacher Education Directory (Dennis, 1989-90)

Title of Degree	No. of Institutions
Adult Education	1
Applied Technology	1
Aerospace Technology	1
Automotive Engineering Technology	1
Aviation	1
Building Construction	1
Building Construction Management	1
Building Construction Technology	1
Career Occupational	1
Career and Technology Education	1
Computer Technology	1
Construction Management	2
Construction Technology	1
Corporate Management	1
Drafting and Design Technology	1
Electronics Technology	2
Education	1
Education for Industry	1
Education Administration (Voc. Ed. Spec.)	1
Engineering Technology	11
Extension and Technical Education	1
Fire Protection	1
General Industry	1
Graphic Arts Management	1
Graphic Arts Technology	1
Graphic Communications	2
Industrial Arts (general)	58
Industrial Arts Education	33
Industrial Arts Teacher Education	2
Industrial Arts and Technology	1
Industrial Arts and Technology Education	2
Industrial Construction and Supervision	1
Industrial Distribution	1
Industrial Education	43
Industrial Education (Industrial Option)	1

Title of Degree	No. of Institutions
Industrial Education and Technology	2
Industrial Illustration	1
Industrial Maintenance	1
Industrial Management	7
Industrial and Management Technology	1
Industrial Occupations	1
Industrial Safety	1
Industrial Sciences	1
Industrial Science Technology Education	2
Industrial Studies (Teaching)	1
Industrial Studies (Non-teaching)	1
Industrial Supervision and Management	1
Industrial-Technical Education	3
Industrial and Technical Education	3
Industrial and Technical Studies	1
Industrial Technology(ies)	98
Industrial Technology Education	4
Industrial Technology and Education	2
Industrial Technology (Sec. Ed.)	2
Industry and Technology	1
Industrial Technology Management	3
Industrial Training and Supervision	1
Industrial and Vocational Education	3
Interdisciplinary Technology	1
Manufacturing Design Technology	1
Manufacturing Engineering Technology	3
Manufacturing Technology	3
Mechanical Engineering Technology	1
Mechanical Technology	1
Occupational and Adult Education	1
Occupation Education	5
Occupational Safety/Hyg. Mgmt.	1
Occupational Training Management	1
Petroleum Technology	2
Photography	1
Printing Management	2
Production Technology	1
Restoration Technology	1
Safety Education	1
Secondary Education	1
Technical Communications	1

Title of Degree	No. of Institutions
Technical Education	6
Technology Education	29
Technical Illustration/Graphic Design	1
Technical and Industrial Education	1
Technology and Occupational Education	1
Technical Vocational Studies	1
Technology(ies)	13
Technology of Industry	1
Technology: Manufacturing	1
Trade and Industrial Education	15
Trade and Industrial State Teaching Certification	65
Trade(s) and Industry	4
Trade and Industry Education	1
Trade-Technical Education	1
Visual Communications	1
Vocational Education	38
Vocational Education (Ind. Tech. emphasis)	1
Vocational Education/Industrial Education	1
Vocational Education and Supervision	1
Vocational Industrial Education	12
Vocational Leadership	1
Vocational Rehabilitation Therapy	1
Vocational Teacher Education	1
Vocational-Technical Education	17
Vocational Technical and Industrial Education	1
Vocational Technical Teacher Education	1
Vocational-Technical, Trade and Industrial, Occupational	1
Vocational Technology	1
Vocational and Technology Education	1
Total	567

Appendix B

Universities Which Offer Degree Trade and Industrial Education Certification in the U. S. and Territories

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*Alabama A & M University
*Auburn University
*Arizona State University (program phased out, 1990)
*Northern Arizona University
University of Arkansas (Fayetteville)
*University of Arkansas (Pine Bluff)
University of Central Arkansas
California State University, Long Beach
California State University, Los Angeles
Pacific Union College
San Diego State University
*Colorado State Univeristy
Western State College (Gunnison)
Central Connecticut State University
Delaware State College
Florida A & M University
Florida State University
*Florida International University
University of Central Florida
University of South Florida
*Georgia Southern College
*Georgia State University
*Savannah State College
*University of Georgia
*Valdosta State College
*University of Hawaii
Idaho State University
University of Idaho
Chicago State University
Illinois State University
Southern Illinois University
Western Illinois University
Ball State University
Purdue University
Iowa State University (Ames)
University of Northern Iowa
Pittsburg State University
Wichita State University
Eastern Kentucky University

Appendix B continued:

Murray State University
University of Kentucky
University of Louisville
Western Kentucky University
Grambling University
Southern University at New Orleans
*Louisiana State University
University of Southern Maine
University of Maryland
Eastern Michigan University
Ferris State University
Northern Michigan University
*Western Michigan University (program was phased out in 1990)
Bemiji State University
Moorhead (Minn) State University
University of Minnesota (Duluth)
University of Minnesota
Alcorn State University
*Mississippi Valley State University
Central Missouri State University
Northwest Missouri State University
Southeastern Missouri State University
University of Missouri
*Northern Montana College
Kearney State College
Peru State College
University of Nebraska
Wayne State College
Keene State College
Glassboro State College
Montclair State College
Rutgers University
Eastern New Mexico University
City College of New York
*State University of New York - Oswego
North Carolina A & T (Tech Ed)
*North Carolina State University
Valley City State College
Central State University (Wilberforce, OH)
*Kent State University
*The Ohio State University
University of Toledo
Wilmington College (not offering T&I courses after 8/29/90)
*Central State Univeristy (Edmond)

Appendix B continued:

*Oklahoma State University
Pandhandle State University
Southwestern Oklahoma State University
*Oregon State University
California University of Pennsylvania
Indiana University of Pennsylvania
*Temple University
*Pennsylvania State University
*University of Pittsburg
*University of Puerto Rico
South Carolina State College
Black Hills State University
*The University of Tennessee
Abilene Christian University
Sam Houston University
University of Houston
*University of North Texas
University of Vermont
*James Madison University
*Norfolk State University
*Virginia Polytechnic Institute & State University
*Virginia State University
*Central Washington University
Eastern Washington University
Western Washington University
West Virginia Institute of Technology
*University of Wyoming

*Listed in Dennis as offering degrees in (a) trade & industrial education, (b) trade(s) & industry, or (c) vocational industrial education.

Appendix C

Degree Titles and Number of Trade and Industrial Education Secondary Teaching Option Graduates, 1989-90

	Baccalaureate	Masters	Specialist	Ed.D./Ph.D.	Total
*Building Construction	10				10
*Construction Tech.	3				3
*Electronics Tech.	2				2
Industrial Education	56	42	11	17	136
Ind. Studies (teach. option)	8				8
Ind. & Tech. Ed.	14	8		5	27
*Ind. Technology(ies)	188	140	20		348
Ind. Tech. Ed.	11	7	5	2	25
*Manufacturing Tech.	1				1
**Occup. and Adult Ed.	1			3	4
Occupational Educ.	4		5		9
*Occup. Training Mgmt.		4			4
*Technical Education	27	2			29
*Tech. Illus/Graphic Design	1				1
*Technology(ies)	3				3
Trade & Industrial Ed.	148	40		2	190
Trade(s) & Industry	11	6			17
Trade-Tech. Education	25				25
*Visual Communications	2				2
Vocational Education	125	113	6	26	270
Voc.Ed./Ind. Ed.		2			2
Vocational Ind. Ed.	93	21		8	122
Vocational-Tech. Ed.	24	69	1	18	112
*Vocational Technology	10				10
Total	**767**	**454**	**48**	**81**	**1360**

*Technology or management degrees with T&I teaching certification courses added.
**Military Program. Graduates without 2,000 hrs. of appropriate work experience must meet this qualification for secondary certification.